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ABSTRACT**METHOD AND APPARATUS FOR LASER VIBROMETRY**

Apparatus and method for identifying a remote target (7; 7a) is described. The
5 remote target (6; 6a) is illuminated with radiation (5; 5a) generated by a laser (1;
1a) and the radiation scattered by the target (6; 6a) is modulated in phase by
the surface (6; 6a) vibrations of the target (7; 7a). A portion of the scattered
radiation is collected by multiple optical receivers (8, 9, 10; 8a, 9a, 10a) and
demodulated by a phase demodulator to generate a signal proportional to the
10 vibrational displacement of the remote target (7; 7a). The radiation scattered by
the remote target (7; 7a) will also include laser 'speckle', generated when
radiation is scattered by a rough solid surface. This speckle can generate
errors in the signal demodulated, which can in turn cause identification errors.
Apparatus is disclosed where the signals generated are substantially unaffected
15 by laser speckle, improving the accuracy of remote target identification.

Fig. 1